

Abstract

The pulverized stem bark and leaf of *Vitex doniana* Sweet were extracted successively under soxhlet with hexane, ethylacetate and methanol. The extracts were qualitatively screened for the presence of some secondary metabolite, and then tested in vitro for activity against some common disease causing microbes. Both standard strains and clinical isolates were used in the antimicrobial screening. The zones of inhibition, minimum inhibitory concentration (MIC), minimum bactericidal concentration (MBC) and minimum fungicidal concentration (MFC) were determined. The results of phytochemical screening revealed the presence of terpenes, sterols, alkaloids, flavonoids, tannins, saponins, glycosides, carbohydrates and balsams while resins were not detected. The in vitro antimicrobial screening using the well diffusion technique revealed the extract to have broad spectrum activity with zones of inhibition ranging from 19 to 24mm, MIC of 2.5 and 10mg/ml for all the sensitive organisms, and MBC and MFC of 2.5-5 and 10mg/ml respectively. The highest activity was an MIC of 1.25 mg/ml and MBC of 2.5mg/ml. The activity index (A.I) shows that the extracts were more active against some microbe especially the enteric bacteria like *Klebsiella pneumonia*, *Klebsiella ozaenae*, *Shigella dysenteriae*, *Basillus subtilis*, *Salmonella typhi* and *Staphylococcus aureus*, while the Proportion index show that the methanol and water extract of the stem bark is a better broad spectrum antibiotic than the other extract. This study provides some scientific base for the use of the plant in traditional medicine. The activities observed could be due to the presence of some of the secondary metabolites like terpenes, alkaloids and flavonoids which have known antimicrobial activity.

Keywords: *Vitex doniana*, phytochemical, antimicrobial, MIC, MBC, MFC